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Migraine is not the most common comorbidity in hidradenitis suppurativa patients

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Editor,

Migraine is the most common primary headache syndrome worldwide, affecting approximately 12% of the Caucasian population [1]. Migraine has been associated with various cardiovascular [2] and psychiatric co-morbidities [3], more recently inflammatory disorders such as psoriasis [4] and inflammatory bowel disease [5]. As hidradenitis suppurativa (HS) shares common comorbidity risks, we sought to investigate the possible link between migraine and HS. We explored the prevalence of migraine in patients that attended a tertiary care hospital (Department of dermatology, Helsinki University Hospital, Finland) and reviewed retrospectively all the attending patients with HS diagnosis between January and December 2018. Age, age at onset and at diagnosis, family history, smoking, comorbidities, Hurley stages and affected body sites were inquired in each patient. As the study was based on medical reports data with no direct patient contact, no ethical committee statement was required.

167 patients were included (97 women, mean age 38.4 years +/- 13.8). The overall prevalence of patients with migraine in our cohort was 12.6% (n=21). Ten patients (7.0% of the cohort, 47.6% of the patients with migraine) had a previously diagnosed migraine at the time of HS diagnosis. **Table 1** summarizes patients' main characteristics. Briefly, HS patients with migraine were mainly women (90.5%, p=0.001) with an onset of HS at an earlier age (17.0 vs. 27.4 years, Mann Whitney U-test, p=0.001). The patients were younger than without migraine (33.0 vs. 39.2 years) but without reaching significance. The prevalence was similar regarding family history, smoking history, body mass index, anatomical location of HS and Hurley stages. Among comorbidities, there was no difference regarding acne, cardio-vascular (hypertension, arrhythmia, lower limb arteriopathy, stroke, gout) and pulmonary disorders (asthma, chronic bronchitis, sleep apnea), dyslipidemia, diabetes, hypothyroidism, or psychiatric disorders, except for bipolar disorder (p=0.001). Patients with migraine were more likely to have psoriasis (p=0.04), inflammatory joint disease (p=0.002), mainly spondyloarthropathies (p=0.005). Multivariate logistic regression (taking into account gender, age, smoking, psoriasis, hypertension, inflammatory joint disease and psychiatric disorders) showed that female gender (OR 9.8 [1.5-63.1], p=0.016), psoriasis (OR 17.2 [2.2-136.3], p=0.007), psychiatric disorders (OR 3.7 [1.1-11.8], p=0.028) and inflammatory joint

diseases (OR 6.9 [1.2-38.4], p=0.027) were associated with migraine among patients with HS.

A comprehensive literature search could not reveal previous reports about the possible association of migraine and HS. The pathophysiology of migraine involves changes in different parts of the central and peripheral nervous system, and complex molecular mechanisms (e.g. release of calcitonin gene-related peptides) [6,7]. Triggers include behavioral factors such as diet, stress, sleep disturbances as well as medicaments [6,7]. Patients with HS may share these triggering factors [8,9]. In our patient cohort, migraine prevalence was similar to the general population [1], but we did not perform a direct comparison with the general population. Apart from the earlier onset of HS in patients with migraine, we found that patients with migraine were more likely to have other comorbidities that have been previously reported. Main limitations of the study include a relatively small cohort size, the absence of a control group, a single tertiary center and the fact that the subtypes of migraine were not discriminated. Our results suggest that migraine is associated indirectly with other inflammatory comorbidities of HS than per se. Larger studies need to confirm these results.

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Table 1. Characteristics of HS patients with and without migraine

	Migraine *n* **(%)**	**No migraine** *n* **(%)**	**P<0.05** **Chi2** **or Mann-Whitney U**
Total (N)	21	146	
Gender			
Men (%) Women (%)	2 (9.5) 19 (90.5)	68 (46.6) 78 (53.4)	0.001
Mean age (years, SD)	33.0 (11.3)	39.2 (14.0)	NS
Mean age at diagnosis (years, SD)	28.4 (12.9)	34.9 (12.8)	NS
Mean age at first symptoms (years, SD)	17.0 (7.8)	27.4 (11.8)	0.001
Familial History of HS*	2/7 (28.6)	24/56 (42.8)	NS
Hurley			
Hurley I	7 (63.6)	27 (37.5)	NS
Hurley II	3 (27.3)	30 (41.6)	
Hurley III	1 (9.1)	15 (20.8)	
Smoking history			
Ever smokers	13/20 (65)	105/138 (76.1)	NS
Active smokers	10 (50)	72 (52.1)	NS
BMI mean (SD)	33.5 (5.9)	32.3 (8.1)	NS
Comorbidities			
Weight			
Overweight and obesity	18 (85.7)	103 (70.5)	NS
Obesity	13 (61.9)	72 (49.3)	NS
Hypertension	1 (4.8)	36 (24.6)	0.04
Dyslipidemia	2 (9.5)	16 (10.9)	NS
Thyroid disease	3 (14.3)	15 (10.3)	NS
Diabetes type 2	1 (4.8)	25 (17.2)	NS
Asthma	4 (19.0)	20 (13.7)	NS

Acne	5 (23.8)	41 (28.1)	NS
Autoimmune and inflammatory disorders			
Psoriasis	4 (19.0)	9 (6.2)	**0.04**
Inflammatory bowel disease (total)***	1 (4.8)	6 (4.1)	NS
Inflammatory joint disease (total)****	5 (23.8)	7 (4.8)	**0.002**
Spondyloarthropathy	3 (14.3)	3 (2.0)	**0.005**
Psychiatric diseases**	12 (57.4)	48 (32.9)	**0.03**
Anxiety	4 (19.0)	24 (16.4)	NS
Depression	6 (28.6)	33 (22.6)	NS
Bipolar disorder	4 (19.0)	4 (2.7)	**0.001**

NS: Not significant; SD: Standard Deviation

*Family history could be obtained in 63 patients

**11 vs. 77 patients

***Includes Crohn's disease and ulcerative colitis

****Includes reactive, rheumatoid, psoriatic arthritis and spondyloarthropathy

*****Includes also schizophrenia, hyperactivity, binge eating disorder, anorexia, post-traumatic stress disorder, compulsive disorder. Several diagnoses can apply to a patient.